

るという問題があった。なお、上記主プログラムを送信する従来技術を利用し、上記プログラムに故障解析プログラムも含めるようにすれば故障解析プログラムを更新する問題については解決するが、メモリの記憶容量が増えるという問題が現ると共に、プログラムを送る伝送制御手段がフロッピー伝送御手順であるので汎用性に欠けるという問題が現る。本発明の課題は、上記のような従来技術の問題を解決し、記憶容量を増やせずに画像情報装置の故障解析を行うことができ、且つ故障解析プログラムの更新を容易に行うことができ、且つ汎用性のある方法で故障解析を行うことができる画像情報装置の故障解析方法を提案すると共に、併せて、汎用性に優れた故障解析・プログラム更新方法などを提供することにある。

【0004】
【課題を解決するための手段】上記の課題を解決するために、請求項1記載の発明では、データ通信ネットワーク内の端末装置に接続された画像情報装置の故障解析方法において、画像情報装置に異常が発生すると上記画像情報装置はその旨を端末装置に通知し、通知を受けた上記画像装置はデータ通信ネットワーク内の所定のサーバと交信して上記サーバから送られてきた故障解析プログラムを取得し、上記故障解析プログラムを上記画像情報装置へ伝送し、上記画像情報装置は受信した故障解析プログラムを動作させて故障解析を行う故障解析方法にした。また、請求項2記載の発明では、上記において、画像情報装置は故障解析の結果を端末装置へ送信し、上記端末装置は受信した故障解析の結果をサーバへ伝送する故障解析方法にした。また、請求項3記載の発明では、請求項2記載の発明において、画像情報装置は故障解析の結果と共に通信履歴情報または機能設定情報を端末装置へ送信し、上記端末装置は受信した通信履歴情報または機能設定情報を端末装置へ送信し、上記端末装置は受信した故障解析の結果と共に上記情報をサーバへ伝送する故障解析方法にした。また、請求項4記載の発明では、請求項1または請求項2記載の発明において、画像情報装置は何を実行中に異常が発生したかを示す情報を端末装置へ送信し、上記端末装置は上記情報により故障解析に必要とされる個別故障解析プログラムを特定し、特定した個別故障解析プログラムをサーバから取得する故障解析方法にした。また、請求項5記載の発明では、データ通信ネットワーク内の端末装置に接続された画像情報装置のプログラム更新方法において、画像情報装置用の代替プログラムを予めデータ通信ネットワーク内のサーバに記憶させておき、上記サーバが端末装置を介して一つの画像情報装置から上記画像情報装置内のプログラムが不良である旨の故障解析結果を受信すると、上記端末装置を介して上記代替プログラムを上記画像情報装置へ送信し、上記画像情報装置は上記代替プログラムを受信すると、それまで備えられていた不良と判断されたプログラムを上記代替プログラムに置換するプログラム更新方法にした。また、請求

項6記載の発明では、データ通信ネットワーク内の端末装置に接続された画像情報装置のプログラム更新方法において、画像情報装置用の代替プログラムがデータ通信ネットワーク内のサーバに格納されると、上記サーバは上記サーバ内の記憶手段を検索し、上記代替プログラムに対応した旧プログラムが格納されている画像情報装置があると判定したならば、端末装置を介して上記代替プログラムを上記画像情報装置へ送信し、上記画像情報装置は上記代替プログラムを受信すると、それまで備えられていた旧プログラムを上記代替プログラムに置換するプログラム更新方法にした。

【0005】
【作用】上記のような方法にしたので、請求項1記載の発明では、画像情報装置に異常が発生すると上記画像情報装置はその旨を端末装置に通知し、通知を受けた上記端末装置はデータ通信ネットワーク内の所定のサーバと交信して上記サーバから送られてきた故障解析プログラムを取得し、上記故障解析プログラムを上記画像情報装置へ伝送し、上記画像情報装置は受信した故障解析プログラムを動作させて故障解析を行うことができる。請求項2記載の発明では、請求項1記載の発明において、画像情報装置は故障解析の結果を端末装置へ送信し、上記端末装置は受信した故障解析の結果をサーバへ伝送することができる。請求項3記載の発明では、請求項2記載の発明において、画像情報装置は故障解析の結果と共に通信履歴情報または機能設定情報を端末装置へ送信し、上記端末装置は受信した上記情報を故障解析の結果と共にサーバへ伝送することができる。請求項4記載の発明では、請求項1または請求項2記載の発明において、画像情報装置は何を実行中に異常が発生したかを示す情報を端末装置へ送信し、上記端末装置は上記情報により故障解析に必要とされる個別故障解析プログラムを特定し、特定した個別故障解析プログラムをサーバから取得することができる。請求項5記載の発明では、サーバが一つの画像情報装置から上記画像情報装置内のプログラムが不良である旨の故障解析結果を受信すると、端末装置を介して代替プログラムを上記画像情報装置へ送信し、上記画像情報装置は上記代替プログラムを受信すると、それまで備えられていた旧プログラムを上記代替プログラムに置換することができる。請求項6記載の発明では、画像情報装置用の代替プログラムがサーバに格納されると、上記サーバは上記サーバ内の記憶手段を検索し、上記代替プログラムに対応した旧プログラムが格納されている画像情報装置があると判定したならば、上記代替プログラムを端末装置を介して上記画像情報装置へ送信し、上記画像情報装置は上記代替プログラムを受信すると、それまで備えられていた旧プログラムを上記代替プログラムに置換することができる。

【0006】
【発明の実施の形態】 以下、図面により本発明の実施の

形態を詳細に説明する。図1は本発明を実施したネットワークシステムのシステム構成図である。図示したように、この実施例のネットワークシステムは例えばインターネットと称されているネットワークのようなデータ通信ネットワーク9に多数の端末装置3や各種サーバ4、5などが接続されたネットワークシステムであり、端末装置3のなかにフロッピー装置1や複写機2など画像情報装置が接続されているものもある。なお、上記端末装置3は例えばパーソナルコンピュータ（以下、PCと称す）などにより実現される。図2は上記フロッピー装置1の構成ブロック図である。図示したように、このフロッピー装置1は、端末装置としてのPCと通信を行うPCインタフェース部10、ROMおよび上記ROMに内蔵されたプログラムに従って装置全体を管理・制御するシステム制御部11、利用者がフロッピー装置に指示を与えるためのキーボードおよびフロッピー装置が利用者にメッセージ等を与えるための表示手段などから成る操作表示部12、画像情報などを一時的に格納しておくRAM13、原稿上の画像を読み取るセンサ14、符号化変換化部（DCC）18によって符号化された受信画像情報をRAM13を介して出力するフロッピー5、公衆電話網を介して遠隔のフロッピー装置との間に呼を設定するための制御部（NCU）16、G3伝送御手順に従ってフロッピー送受信を行う通信制御部17、低速モデムおよび高速モデムから成るモデム19、画像情報を蓄積しておく画像メモリ20、制御情報を記憶しておき電源遮断時のためにバックアップフロッピーされたパラメタメモリ21などを備えている。

【0007】図3に、本発明の第1の実施例の動作フローを示す。以下、図3などに従って、上記画像情報装置がフロッピー装置1の場合で第1の実施例の動作を説明する。図3に示したように、この実施例では、フロッピー装置1内のシステム制御部11が常にフロッピー装置1の動作異常・故障の発生を監視している（S1）。すなわち、上記システム制御部11内のCPUがプログラムに従って監視を行うと共に、上記システム制御部11内のCPU監視回路がCPUの動作異常・故障の発生を監視しているのである。なお、CPUは通信処理開始時および画像読み取り・書き込み制御などの制御処理開始時にそれぞれの処理中である旨を示す情報をジョブレジスタに書き込み、その処理が終了したときに上記情報を消去する。そして、動作異常・故障が発生すると（S1でYES）、上記CPUまたはCPU監視回路は動作異常・故障発生を示す情報および上記ジョブレジスタ内のジョブ情報をPCインタフェース部10に渡す。PCインタフェース部10には予めこのフロッピー装置のモデル番号および機番などがセットされており、PCインタフェース部10は、上記情報を取得すると、上記ジョブ情報、モデル番号、機番などを含む故障発生通知をPC（端末装置3a）へ送る（S2）。これ

により、PC3aはデータ通信ネットワーク（例えばインターネット）9への接続処理を行い（S3）、所定のサーバ（例えばサーバ4）との間にリンクを確立し、上記サーバ4と交信する（S4）。そして、PCはサーバ4内の故障解析サーバ部と交信し（S5）、サーバ4から故障解析プログラム（故障解析ソフト）登録リストを取得する。上記登録リストにはそれぞれその故障解析プログラムに対応付けモデル番号および機番が記載されており、PC3aは上記故障解析プログラム登録リストを取得すると、フロッピー装置1から送られてきたモデル番号および機番に対応付けられた故障解析プログラムがあるかを判定する。

【0008】こうして、該当する故障解析プログラムがないと判定されたならば取得（ダウンロード）不可なので（S6でNO）この実施例の動作を終了させるが、該当する故障解析プログラムがあり、取得可であれば（S6でYES）、上記故障解析プログラムに属する個別プログラム名リストをサーバ4から取得する。そして、フロッピー装置1から送られてきているジョブ情報が通信処理中を示しているか動作異常・故障が通係エラーと判断し（S7でYES）、上記リストに従って通係系故障解析プログラムの転送（ダウンロード）をサーバ4に要求し、送られてきた上記故障解析プログラムを取得する（S10）。続いて、PC3aは上記故障解析プログラムをフロッピー装置1へ伝送し、フロッピー装置1は、PCインタフェース部10を介して取得した上記故障解析プログラムをRAM13、画像メモリ20またはパラメタメモリ21の所定領域に格納する（S11）。さらに、PCインタフェース部10はフロッピー装置1を初期状態にし、システム制御部11に指示して上記故障解析プログラムに従った故障解析を実行させる（S16）。

【0009】また、フロッピー装置1から送られてきているジョブ情報が制御処理中を示しているか動作異常・故障が制御系エラーと判断し（S8でYES）、上記リストに従って制御系故障解析プログラムの転送（ダウンロード）をサーバ4に要求し、送られてきた上記故障解析プログラムを取得する（S12）。続いて、PC3aは上記故障解析プログラムをフロッピー装置1へ伝送し、フロッピー装置1は、PCインタフェース部10を介して取得した上記故障解析プログラムをRAM13などの所定領域に格納する（S13）。さらに、PCインタフェース部10はフロッピー装置1を初期状態にし、システム制御部11に指示して上記故障解析プログラムに従った故障解析を実行させる（S16）。また、フロッピー装置1から送られてきているジョブ情報が通信処理中も制御処理中も示していないければその他のエラーと判断し（S9でYES）、該当する故障解析プログラム全体の転送（ダウンロード）をサーバ4に要求し、送られてきた上記故障解析プログラムを取得する

(S14)。続いて、PC3aは上記故障解析プログラムをフタシミリ装置1へ転送し、フタシミリ装置1は、PCインタフェース部10を介して取得した上記故障解析プログラムをRAM13などの所定領域に格納する(S15)。さらに、PCインタフェース部10はフタシミリ装置を初期状態にし、システム制御部11に指示して上記故障解析プログラムに従った故障解析を実行させる(S16)。

【0010】なお、故障解析プログラムを実行させた後、制御部11はRAM13内などに記憶されている故障解析プログラムを破棄する。また、上記説明においては、PCがモデル番号などに該当する故障解析プログラムの判定を行った後、該当する個別故障解析プログラムの判定を行うにしたが、モデル番号、機種、ジョブ情報をサーバ4へ送り、上記の判定をサーバ4が行い、その判定結果に従ってサーバ4が個別故障解析プログラムを送ったりするようにしてもよい。こうして、この実施例によれば、未使用状態にあるRAM13などに故障解析プログラムを格納して故障解析を行い、実行後は上記プログラムを破棄してしまっているので、メモリの記憶容量を増やせずに故障解析を行うことができる。また、サーバ5が現地に行かなくても故障解析が可能であるし、フタシミリ装置の利用者が故障解析のための操作を行う必要もない。なお、故障解析の結果はフタシミリ装置1内のフロッピィ15により記録紙に出力されるが、PCインタフェース部10を介してPCへ送られ、PC3aに表示される。このようにして出力された解析結果に従って、この後、利用者自らが復旧作業を行うか、サーバ5をコントロールを行うわけである。

【0011】図4は本発明の第2の実施例を示す動作フロー図である。図示したように、この実施例では、フタシミリ装置1で動作異常、故障が発生すると(S21でyes)(第1の実施例のS1参照)、第1の実施例と同様にして、または予めフタシミリ装置内に備えた故障解析プログラムにより故障解析を実行する(S22)。そして、その解析結果をPCインタフェース部10を介してPC3aへ転送し(S23)、PC3aは取得した上記解析結果をサーバ4へ転送(フタシミリ装置1)する(S24)。続いて、PC3aは、故障診断に役立つ通信履歴情報などの記憶されたタンノリスのアップロード指定が予めPC3aに設定されているか否かを判定し(S25)、設定されていれば(S25でyes)、フタシミリ装置1へタンノリスを転送要求を出し、それを受けたフタシミリ装置1はRAM1などの所定領域に記憶されている上記タンノリスをPC3aへ送信する(S26)。さらに、PC3aは上記タンノリスをサーバ4へ転送(フタシミリ装置1)する(S27)。続いて、PC3aは、故障診断に役立つ機能設定情報などパラメータリスのアップロード指定が予めPC3aに設定されているか否かを判定し(S28)、設

定されていれば(S28でyes)、フタシミリ装置1へパラメータリスを転送要求を出し、それを受けたフタシミリ装置1はパラメータリスをPC3aへ所定領域に記憶されているパラメータリスをPC3aへ送信する(S29)。さらに、PC3aは上記パラメータリスをサーバ4へ転送(フタシミリ装置1)する(S30)。こうして、この実施例によれば、実施例1の効果だけでなく、すばやい故障修復を実現することができる。

【0012】図5は本発明の第3の実施例を示す動作フロー図である。この実施例では、例えば第2の実施例のようにしてサーバ4側で故障解析結果を取得し、それに基づいてフタシミリ装置本体プログラム(本体ソフト、主プログラム)の不具合であると判定したならば(S41でyes)、フタシミリ装置本体プログラム(対策済みソフト)の転送要求が予めサーバ4内に設定されているか否かを判定する(S42)。なお、この実施例では、不具合を対策した代替プログラムをこの動作フローの実行に先立ってサーバ4内に登録(格納)しておく。こうして、代替プログラムの転送要求が設定されていると判定されたならば(S43でyes)、サーバ4は代替プログラムをPC3aへ転送(ダウンロード)する(S44)。そして、代替プログラムを取得したPC3aは、代替プログラムをフタシミリ装置1に自動搬入付け(インストール)することを示す情報(予めPC3aに設定されているか否かを判定し(S45)、設定されていれば(S45でyes))取得した代替プログラムをフタシミリ装置1へ転送する。上記代替プログラムを受信するフタシミリ装置1は、本体プログラムを例えばシステム制御部11内のフタシミリ装置1に備え、インストールプログラムをROMに搬入している。そして、PCインタフェース部10を介して上記代替プログラムを取得すると、システム制御部11は上記インストールプログラムを起動させ、上記インストールプログラムに従って動作するCPUがRAM13などに一時的に格納された代替プログラムをフタシミリメモリに重ね書きして代替プログラムのインストールを行う(S46)。

【0013】なお、上記において、フタシミリ装置本体プログラムの不具合をサーバ4が感知すると、無条件にフタシミリ装置へ代替プログラムを転送するようにすることも可能である。こうして、この実施例によれば、単に故障解析と解析結果の通知をデータ通信ネットワークを介して行うだけでなく、不具合を対策済みの代替プログラムの搬入付け(インストール)もデータ通信ネットワークを介して行うことができるので、さらにすばやい復旧が可能になる。上記第3の実施例が本体プロ

グラムに不具合が発生したことにより上記プログラムの更新を行うのに対して第4の実施例では、対策されたプログラムがサーバ4に格納されたならば、不具合発生に先んじてプログラムを更新する。つまり、図6の動作フロー図に示すように、この実施例のサーバ4では、対策された新規代替プログラム(新規対策ソフト)が格納されたか否かを常に監視しており(S51)、上記代替プログラムが格納されると(S51でyes)、サーバ4は上記代替プログラムに対応する旧プログラムが備えられた該当該装置の換装を行うように予めサーバ4に設定されているか否かを判定する(S52)。なお、上記該当機構換装の設定はサーバ4の操作部または端末装置3から必要に応じて利用者により行われる。こうして、該当該機構換装を行うように設定されていると判定されたならば(S52でyes)、サーバ4内の記憶部に予め設定されているプログラム登録テーブル内のそのとき格納されたプログラム(旧プログラム)を換装する。図7にプログラム登録テーブルの一例を示す。図示したように、それぞれのプログラムに対応付けてそのプログラムが備えられている機構名(またはモデル番号)および上記機構名との画像情報装置(フタシミリ装置や複写機)が接続されているPCなど端末装置3のネットワークアドレスが登録されている。なお、この登録は、例えばそれぞれの端末装置3がプログラムに対応付けて機構名および上記端末装置のネットワークアドレスをサーバ4へ送信することにより行われる。

【0014】該当該機構換装を行った結果、該当該機構名と(S54でyes)、ネットワークS55以下を実行する。なお、ネットワークS55以下は第3の実施例(図5参照)のネットワークS42以下と同様であるので説明を省略する。但し、サーバ4は、PC(端末装置3)へ送信するに際してPCのネットワークアドレスを図7に示したプログラム登録テーブルから取得する。一方、ネットワークS51において新規代替プログラムがないと判定されたとき(S51でno)、ネットワークS52において該当該機構換装を行わないように設定されていると判定されたとき(S52でno)、ネットワークS54において該当該機構がないと判定されたとき(s54no)は、その時点でこの動作フローから抜ける。こうして、この実施例によれば、画像情報装置における動作異常発生に先んじて本体プログラムを更新することができる。なお、以上に

と上記画像情報装置はその旨を端末装置に通知し、通知を受けた上記端末装置はデータ通信ネットワーク内の所定のサーバと交信して上記サーバから送られた故障解析プログラムを取得し、上記故障解析プログラムを上記画像情報装置へ転送し、上記画像情報装置は受信した故障解析プログラムを動作させて故障解析を行うことができるので、故障解析プログラムを画像情報装置内に常駐させる必要がなくなり、したがって、画像情報装置の記憶容量を増やすずに画像情報装置の故障解析を行うことができる。且つデータ通信ネットワークによって汎用性のある方法で故障解析を行うことができる。また、請求項2記載の発明では、請求項1記載の発明において、画像情報装置は故障解析の結果を端末装置へ送信し、上記端末装置は受信した故障解析の結果をサーバへ転送することができるので、請求項1記載の発明の効果を実現することができる。故障した画像情報装置をすばやく修復することができる。故障した画像情報装置の発明では、請求項2記載の発明において、画像情報装置は故障解析の結果と共に通信履歴情報または機能設定情報を端末装置へ送信し、上記端末装置は受信した上記情報を故障解析の結果と共にサーバへ転送することができるので、より正確な故障診断を行うことができる。また、請求項4記載の発明では、請求項1または請求項2記載の発明において、画像情報装置は何を実行中に異常が発生したかを示す情報を端末装置へ送信し、上記端末装置は上記情報により故障解析に必要とする個別故障解析プログラムを特定し、特定の個別故障解析プログラムをサーバから取得することができるので、転送・実行させる故障解析プログラムの量を少なくすることができる。したがって、転送時間および故障解析時間を短縮することができる。また、通信コストを削減することができる。また、請求項5記載の発明では、サーバへの画像情報装置から上記画像情報装置内のプログラムが不良である旨の故障解析結果を受信すると、端末装置を介して代替プログラムを上記画像情報装置へ送信し、上記画像情報装置は上記代替プログラムを受信すると、それまで備えられていた不良と解析されたプログラムを上記代替プログラムに換装することができるので、故障した画像情報装置の修復をよりすばやく行うことができるし、データ通信ネットワークによった汎用性に優れたプログラム更新を実現することができる。また、請求項6記載の発明では、画像情報装置用の代替プログラムがサーバに格納されると、上記サーバは上記サーバ内の記憶手段を換装し、上記代替プログラムに対応した旧プログラムが格納されている画像情報装置を介して上記画像情報装置へ送信し、上記画像情報装置は上記代替プログラムを受信すると、それまで備えられていた旧プログラムを上記代替プログラムに置換することができるので、フ

【発明の効果】以上説明したように、本発明によれば、請求項1記載の発明では、画像情報装置に異常が発生す

と上記画像情報装置に異常が発生す

(7)

の動作フロー図である。

【図6】本発明の第4の実施例のネットワークシステム
の動作フロー図である。

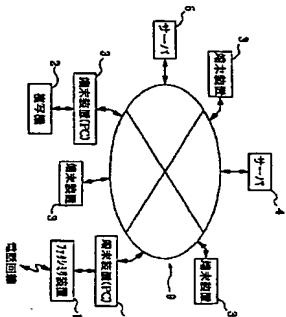
【図7】本発明の第4の実施例のサーバ要部のデータ構
成図である。

【図8】従来技術の一例を示す遠隔故障診断システムの
システム構成図である。

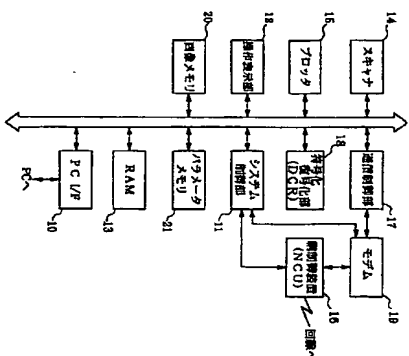
【符号の説明】

1 フラクシミリ装置、2 複写機、3 端末装置、4
サーバ、9 データ通信ネットワーク、10 P
Cインタフェース部、11 システム制御部、13
RAM、21 パラメータメモリ

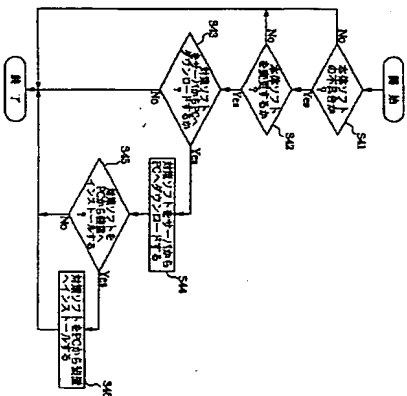
【図1】



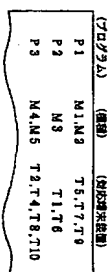
【図2】



【図5】

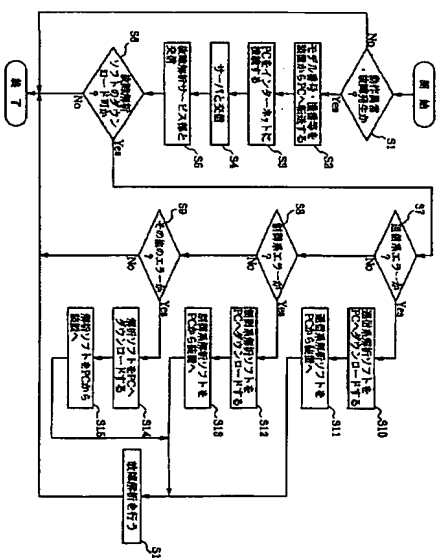


【図7】

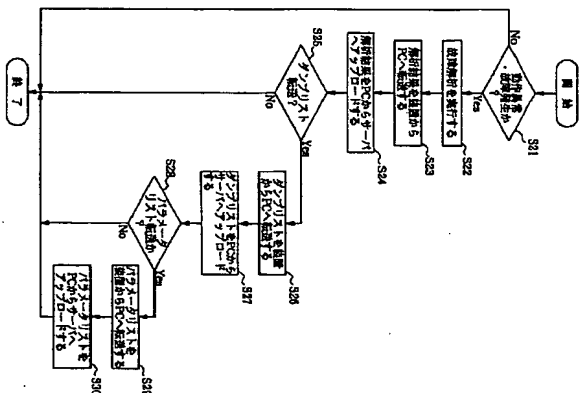


(8)

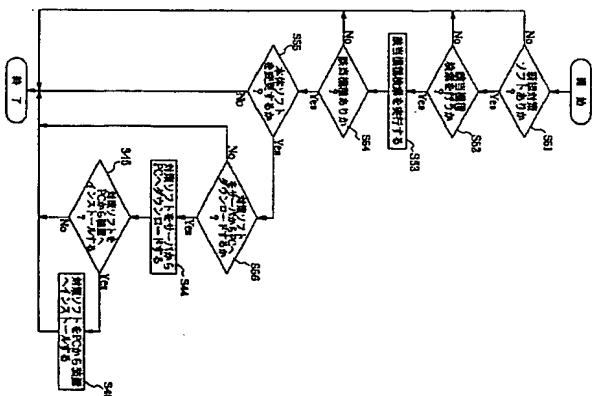
【図3】



【図4】

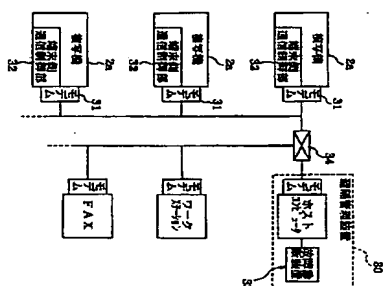


【図6】



(9)

【8】



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 (71)Applicant : RICOH CO LTD
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 (54) FAILURE ANALYZING METHOD AND PROGRAM UPDATING METHOD FOR
 IMAGE INFORMATION DEVICE

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.
 1. This document has been translated by computer. So the translation may not reflect the original precisely.
 2. **** shows the word which can not be translated.
 3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] In the failure analysis approach of the image information equipment connected to the terminal unit in a data communication network If abnormalities occur to image information equipment, the above-mentioned image information equipment will notify that to a terminal unit. The above-mentioned terminal unit which received the notice acquires the failure analyzer which communicated with the predetermined server in a data communication network, and has been sent from the above-mentioned server. It is the failure analysis approach of the image information equipment which transmits the above-mentioned failure analyzer to the above-mentioned image information equipment, and is characterized by for the above-mentioned image information equipment operating the failure analyzer which received, and performing failure analysis.

[Claim 2] It is the failure analysis approach of the image information equipment which image information equipment transmits the result of failure analysis to a terminal unit in the failure analysis approach of the image information equipment of claim 1, and is characterized by the above-mentioned terminal unit transmitting the result of the received failure analysis to a server.

[Claim 3] It is the failure analysis approach of the image information equipment which image information equipment transmits communication link hysteresis information or functional setting information to a terminal unit with the result of failure analysis in the failure analysis approach of the image information equipment of claim 2, and is characterized by the above-mentioned terminal unit transmitting the above-mentioned information to a server with the result of the received failure analysis.

[Claim 4] It is the failure analysis approach of the image information equipment characterized by to transmit the information which shows whether abnormalities

generated image information equipment while performing what in the failure analysis approach of the image information equipment of claim 1 or claim 2 to a terminal unit, and for the above mentioned terminal unit to specify the individual failure analyzer needed for failure analysis by the above mentioned information, and to acquire the individual failure analyzer which specified from a server.

[Claim 5] In the renewal approach of a program of the image information equipment connected to the terminal unit in a data communication network The server in a data communication network is made to memorize the alternative program for image information equipments beforehand. If the above mentioned server receives the failure analysis result of the purport that the program in the above mentioned image information equipment is poor, from one image information equipment through a terminal unit If the above mentioned alternative program is transmitted to the above mentioned image information equipment through the above mentioned terminal unit and the above mentioned image information equipment receives the above mentioned alternative program The renewal approach of a program of the image information equipment characterized by permuting the program analyzed with the defect whom it had till then by the above mentioned alternative program.

[Claim 6] In the renewal approach of a program of the image information equipment connected to the terminal unit in a data communication network If the alternative program for image information equipments is stored in the server in a data communication network If it judges with the above mentioned server having image information equipment with which the storage means in the above mentioned server is searched, and the old program corresponding to the above mentioned alternative program is carried When the above mentioned alternative program is transmitted to the above mentioned image information equipment through a terminal unit and the above mentioned image information equipment receives the above mentioned alternative program, it is the renewal approach of a program of the image information equipment characterized by permuting the old program which it had till then by the above mentioned alternative program.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] With respect to the failure analysis approach of image information equipments, such as facsimile apparatus, a copying machine, etc. which

were connected to terminal units, such as a personal computer connected to the data communication network, etc., especially, this invention transmits a failure analyzer etc. through the above mentioned terminal unit from a remote server, and relates to the failure analysis approach of image information equipment that the above mentioned program can perform failure analysis etc. in image information equipment etc.

[0002]

[Description of the Prior Art] It has the failure analyzer beforehand in the above mentioned image information equipment, and a serviceman goes there, and performs the above mentioned program, and the early failure analysis technique in image information equipments, such as facsimile apparatus and a copying machine, performed restoration according to the analysis result. However, by the above approaches, since a cause of fault was not found until the serviceman went there, when going, there was a problem that it was not known what kind of maintenance component I may bring. Therefore, in the conventional facsimile apparatus, the user of the above mentioned facsimile apparatus performs the failure analyzer with which facsimile apparatus is equipped. The telephone line to which the above mentioned facsimile apparatus is connected is minded. Send the analysis result to the facsimile apparatus of a service firm automatically, or The facsimile apparatus of a service firm was operated, the above mentioned failure analyzer in remote facsimile apparatus was performed using facsimile transmission control procedures, and the technique of sending the analysis result to the facsimile apparatus of the above mentioned service firm automatically was proposed. moreover, also in a copying machine, like the remote troubleshooting system (refer to drawing 8) shown in JP,8-30152,A Copying machine 2a is equipped with a reserve diagnostic program, a data modem 31, the terminal side communications control section 32, etc. The above mentioned data modem 31 and a dial-up line (or dedicated line) 34 are minded for the preliminary diagnostic result performed with the above mentioned reserve diagnostic program with data communication transmission control procedures. To remote management equipment 30 Delivery, The conventional technique in which the fault read-out unit 33 in the above mentioned remote management equipment 30 performs failure analysis based on the above mentioned preliminary diagnostic result is offered. In addition, in facsimile apparatus, the main program of facsimile apparatus is transmitted using facsimile transmission control procedures, and the technique which updates the main program which it had till then is offered.

[0003]

[Problem(s) to be Solved by the Invention] However, with the above mentioned

conventional technique, since the failure analyzer or the reserve diagnostic program had to be memorized by the resident at image information equipment, only the part must have the storage capacity of memory too much, and there was a problem that renewal of the above-mentioned program was difficult. In addition, if the conventional technique of transmitting the above-mentioned main program is used and it is made to also include a failure analyzer in the above-mentioned program, it will solve about the problem which updates a failure analyzer, but while the problem that the storage capacity of memory increases remains, since the transmission control procedures which send a program are facsimile transmission control procedures, the problem that versatility is missing remains. While offering the failure analysis approach of image information equipment that failure analysis can be performed by the approach of the technical problem of this invention being able to solve the problem of the above conventional techniques, and being able to perform failure analysis of image information equipment, without increasing storage capacity, updating a failure analyzer easily, and being flexible, it is for combining and offering the renewal approach of a failure analyzer excellent in versatility etc.

[0004]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, in invention according to claim 1 In the failure analysis approach of the image information equipment connected to the terminal unit in a data communication network If abnormalities occur to image information equipment, the above-mentioned image information equipment will notify that to a terminal unit. The above-mentioned terminal unit which received the notice acquires the failure analyzer which communicated with the predetermined server in a data communication network, and has been sent from the above-mentioned server. The above-mentioned failure analyzer was transmitted to the above-mentioned image information equipment, and the above-mentioned image information equipment was made into the failure analysis approach of operating the failure analyzer which received and performing failure analysis. Moreover, in invention according to claim 2, in the above, image information equipment transmitted the result of failure analysis to the terminal unit, and the above-mentioned terminal unit made the result of the received failure analysis the failure analysis approach transmitted to a server. Moreover, in invention according to claim 3, in invention according to claim 2, image information equipment transmitted communication link bisection information or functional setting information to the terminal unit with the result of failure analysis, and the above-mentioned terminal unit made the above-mentioned information the failure analysis approach transmitted to a

server with the result of the received failure analysis. Moreover, the information which shows whether abnormalities generated image information equipment while performing what in invention according to claim 1 or 2 by invention according to claim 4 was transmitted to the terminal unit, and the above-mentioned terminal unit specified the individual failure analyzer needed for failure analysis by the above-mentioned information, and carried out to the failure analysis approach which acquires the specified individual failure analyzer from a server. Moreover, in invention according to claim 5, it sets to the renewal approach of a program of the image information equipment connected to the terminal unit in a data communication network. The server in a data communication network is made to memorize the alternative program for image information equipments beforehand. If the above-mentioned server receives the failure analysis result of the purport that the program in the above-mentioned image information equipment is poor, from one image information equipment through a terminal unit. The above-mentioned alternative program was transmitted to the above-mentioned image information equipment through the above-mentioned terminal unit, and the above-mentioned image information equipment made the program analyzed with the defect whom it had till then the renewal approach of a program permitted by the above-mentioned alternative program, when the above-mentioned alternative program was received. Moreover, in invention according to claim 6, it sets to the renewal approach of a program of the image information equipment connected to the terminal unit in a data communication network. If the alternative program for image information equipments is stored in the server in a data communication network. If it judges with the above-mentioned server having image information equipment with which the storage means in the above-mentioned server is searched, and the old program corresponding to the above-mentioned alternative program is carried. The above-mentioned alternative program was transmitted to the above-mentioned image information equipment through the terminal unit, and the above-mentioned image information equipment made the old program which it had till then the renewal approach of a program permitted by the above-mentioned alternative program, when the above-mentioned alternative program was received.

[0005]

[Function] Since it made the above approaches, the failure analyzer which the above-mentioned terminal unit which the above-mentioned image information equipment notified that to the terminal unit when abnormalities occurred to image information equipment in invention according to claim 1, and received the notice communicated with the predetermined server in a data communication network, and

has been sent from the above-mentioned server acquires, the above-mentioned failure analyzer transmits to the above-mentioned image information equipment, and the above-mentioned image information equipment can operate the failure analyzer received, and can carry out failure analysis. In invention according to claim 2, in invention according to claim 1, image information equipment can transmit the result of failure analysis to a terminal unit, and the above-mentioned terminal unit can transmit the result of the received failure analysis to a server. In invention according to claim 3, in invention according to claim 2, image information equipment can transmit communication link bystereis information or functional setting information to a terminal unit with the result of failure analysis, and the above-mentioned terminal unit can transmit the received above-mentioned information to a server with the result of failure analysis. In invention according to claim 4, in invention according to claim 1 or 2, the information which shows whether abnormalities generated image information equipment while performing what is transmitted to a terminal unit, and the above-mentioned terminal unit can specify the individual failure analyzer needed for failure analysis by the above-mentioned information, and can acquire the specified individual failure analyzer from a server. In invention according to claim 5, if a server receives the failure analysis result of the purport that the program in the above-mentioned image information equipment is poor, from one image information equipment, an alternative program will be transmitted to the above-mentioned image information equipment through a terminal unit, and the above-mentioned image information equipment can permute the program analyzed with the defect whom it had till then by the above-mentioned alternative program, if the above-mentioned alternative program is received. In invention according to claim 6, if the alternative program for image information equipments is stored in a server. If it judges with the above-mentioned server having image information equipment with which the storage means in the above-mentioned server is searched, and the old program corresponding to the above-mentioned alternative program is carried. The above-mentioned alternative program is transmitted to the above-mentioned image information equipment through a terminal unit, and the above-mentioned image information equipment can permute the old program which it had till then by the above-mentioned alternative program, if the above-mentioned alternative program is received.

[0006]

[Embodiment of the Invention] Hereafter, a drawing explains the gesture of operation of this invention to a detail. Drawing 1 is the system configuration Fig. of the network system which carried out this invention. As illustrated, the network system of this

example is a network system by which many a terminal unit 3, the various servers 4 and 5, etc. were connected to a data communication network 9 like the network called the Internet, and some to which image information equipments, such as facsimile apparatus 1 and a copying machine 2, are connected are in a terminal unit 3. In addition, the above-mentioned terminal unit 3 is realized by the personal computer (PC is called hereafter) etc. Drawing 2 is the configuration block Fig. of the above-mentioned facsimile apparatus 1. As illustrated, this facsimile apparatus As a terminal unit ** PC and a communication link A keyboard and facsimile apparatus for the system control section 11 and the user who follow the program built in PC interface section 10, ROM, and Above ROM to perform, and manage and control the whole equipment to give directions to facsimile apparatus to a user a message etc. By RAM13 which stores temporarily the actuation display 12 which consists of the display means for giving etc., drawing information, etc., the scanner 14 which reads the image on a manuscript, and the coding decryption section (OCR) 18 The plotter 15 and public telephone network which output the decrypted receiving drawing information through RAM13 are minded. Between remote facsimile apparatus The modem 19 which consists of the network control unit (NCU) 16 for setting up a call, the communications control section 17 which performs facsimile transmission and reception according to G3 transmission control procedures, a slow modem, and a fast modem, the image memory 20 which accumulates drawing information, and control information are memorized. A sake [at the time of power source cutoff] It has the parameter memory 21 backed up with the dc battery.

[0007] The flow of the 1st example of this invention of operation is shown in drawing 3. Hereafter, according to drawing 3 etc., actuation of the 1st example is explained by the case where the above-mentioned image information equipment is facsimile apparatus 1. As shown in drawing 3, in this example, the system control section 11 in facsimile apparatus 1 is always supervising generating of abnormalities of operation and failure of facsimile apparatus 1 (S1). That is, while CPU in the above-mentioned system control section 11 supervises according to a program, the CPU supervisory circuit in the above-mentioned system control section 11 is supervising generating of abnormalities of operation and failure of CPU. In addition, CPU writes the information which shows the purport which is [each] under processing at the time of control processing initiation of the time of communications processing initiation, image reading, write in control, etc., etc. in a job register, and when the processing is completed, it eliminates the above-mentioned information. And if abnormalities of operation and failure occur (it is Yes at S1). Above CPU or a CPU supervisory circuit will pass the information which shows abnormalities of operation and failure generating, and the job information in the

above-mentioned job register to PC interface section 10. A model number, an equipment item number, etc. of this facsimile apparatus are beforehand set to PC interface section 10, and PC interface section 10 will send the notice of failure generating containing the above-mentioned job information, a model number, an equipment item number, etc. to PC (terminal unit 3a), if the above-mentioned information is acquired (S2). Thereby, PC3a performs connection processing to a data communication network (for example, Internet) 9 (S3), establishes a link between predetermined servers (for example, server 4), and communicates with the above-mentioned server 4 (S4). And PC communicates with the failure analysis courtesy counter in a server 4 (S5), and acquires a failure analyzer (failure analysis software) registration list from a server 4. If it matches with the above-mentioned registration list at each failure analyzer, the model number and the equipment item number are indicated and PC3a acquires the above-mentioned failure analyzer registration list, it will judge whether there is any failure analyzer matched with the model number and equipment item number which have been sent from facsimile apparatus 1.

[0008] In this way, since it will be an acquisition (download) failure if judged with there being no corresponding failure analyzer (it is No at S6), actuation of this example is terminated, but there is a corresponding failure analyzer, and if acquisition is good (it is Yes at S6), the individual program name list belonging to the above-mentioned failure analyzer will be acquired from a server 4. And if the job information sent from facsimile apparatus 1 shows under communications processing, it is judged as a communication system error (it is Yes at S7), and abnormalities of operation and failure will require a transfer (download) of a communication system failure analyzer of a server 4 according to the above-mentioned list, and will acquire the sent above-mentioned failure analyzer (S10). Then, PC3a transmits the above-mentioned failure analyzer to facsimile apparatus 1, and facsimile apparatus 1 stores in RAM13, an image memory 20, or the predetermined field of the parameter memory 21 the above-mentioned failure analyzer acquired through PC interface section 10 (S11). Further PC interface section 10 makes facsimile apparatus an initial state, and performs failure analysis which directed in the system control section 11 and followed the above-mentioned failure analyzer (S16).

[0009] Moreover, if the job information sent from facsimile apparatus 1 shows under control processing, it is judged as a control-system error (it is Yes at S8), and abnormalities of operation and failure will require a transfer (download) of a control-system failure analyzer of a server 4 according to the above-mentioned list, and will acquire the sent above-mentioned failure analyzer (S12). Then, PC3a transmits the above-mentioned failure analyzer to facsimile apparatus 1, and facsimile apparatus 1

stores the above-mentioned failure analyzer acquired through PC interface section 10 in predetermined fields, such as RAM13 (S13). Furthermore, PC interface section 10 makes facsimile apparatus an initial state, and performs failure analysis which directed in the system control section 11 and followed the above-mentioned failure analyzer (S16). Moreover, if the job information sent from facsimile apparatus 1 does not show during inside of communications processing, or control processing, it is judged as other errors (it is Yes at S9), and a transfer (download) of the corresponding whole failure analyzer is required of a server 4, and the sent above-mentioned failure analyzer is acquired (S14). Then, PC3a transmits the above-mentioned failure analyzer to facsimile apparatus 1, and facsimile apparatus 1 stores the above-mentioned failure analyzer acquired through PC interface section 10 in predetermined fields, such as RAM13 (S15). Furthermore, PC interface section 10 makes facsimile apparatus an initial state, and performs failure analysis which directed in the system control section 11 and followed the above-mentioned failure analyzer (S16).

[0010] In addition, after performing a failure analyzer, a control section 11 cancels the failure analyzer memorized in RAM13 etc. Moreover, although it was made to judge the corresponding individual failure analyzer, delivery performs a model number, an equipment item number, and job information to a server 4, a server 4 performs the above-mentioned judgment, and a server 4 may be made to judge the failure analyzer to which PC corresponds to a model number etc., or to send an individual failure analyzer in the above-mentioned explanation, according to the judgment result. In this way, since according to this example a failure analyzer may be stored in RAM13 in an intact condition etc., failure analysis may be performed and after activation may cancel the above-mentioned program, failure analysis can be performed, without increasing the storage capacity of memory. Moreover, even if a serviceman does not go there, failure analysis is possible and the user of facsimile apparatus does not need to perform actuation for failure analysis. In addition, the result of failure analysis is outputted to the recording paper by the plotter 15 in facsimile apparatus 1, or is sent to PC through PC interface section 10, and is displayed on PC3a. Thus, according to the outputted analysis result, the user himself performs a rehabilitation work or a serviceman call is performed after this.

[0011] Drawing 4 is the flow Fig. of operation showing the 2nd example of this invention. As illustrated, if abnormalities of operation and failure occur with facsimile apparatus 1 (S1 reference of the 1st example) (it is Yes at S21), in this example, failure analysis will be performed like the 1st example by the failure analyzer which it had in facsimile apparatus beforehand (S22). And the analysis result is transmitted to PC3a through PC

interface section 10 (S23), and PC3a transmits the acquired above-mentioned analysis result to a server 4 (S24). (upload) Then, if upload assignment of the dump list indicated [information / that PC3a was useful to troubleshooting / communication link hysteresis] judges whether it is beforehand set as PC3a (S25) and is set up in it (it is Yes at S25), it will advance a dump list transfer request to facsimile apparatus 1, and will transmit the above-mentioned dump list with which the facsimile apparatus 1 which received it is memorized to predetermined fields, such as RAM1, to PC3a (S26). Furthermore, PC3a transmits the above-mentioned dump list to a server 4 (S27). (upload) Then, if upload assignment of parameter lists, such as functional setting information that PC3a is useful to troubleshooting, judges whether it is beforehand set as PC3a (S28) and is set up in it (it is Yes at S28), it will advance a parameter list transfer request to facsimile apparatus 1, and will transmit the parameter list with which the facsimile apparatus 1 which received it is memorized to predetermined fields, such as the parameter memory 21, to PC3a (S29). Furthermore, PC3a transmits the above-mentioned parameter list to a server 4 (S30). (upload) In this way, according to this example, not only the effectiveness of an example 1 but quick failure restoration is realizable.

[0012] Drawing 5 is the flow Fig. of operation showing the 3rd example of this invention. In this example, carry out, for example like the 2nd example, and a failure analysis result is acquired by the server 4 side. If it judges with it being the fault of the body program of facsimile apparatus (body software, main program) based on it (it is Yes at S41) It judges whether the renewal demand of automatic of the body program of facsimile apparatus is beforehand set up in the server 4 by the demand from PC3a etc. (S42). If set up (it is Yes at S42), it will judge whether the transfer request of an alternative program (copied with software) is beforehand set up in the server 4 (S43). In addition, in this example, the alternative program which coped with fault is registered into the server 4 in advance of activation of this flow of operation (storing). In this way, if judged with the transfer request of an alternative program being set up (it is Yes at S43), a server 4 will transmit an alternative program to PC3a (S44). (download) And PC3a which acquired the alternative program transmits the alternative program acquired when judging and (S45) setting up whether the information which shows that automatic **** attachment (install) of the alternative program is carried out to facsimile apparatus 1 would be beforehand set as PC3a (it is Yes at S45) to facsimile apparatus 1. The facsimile apparatus 1 which receives the above-mentioned alternative program equipped the flash memory for example, in the system control section 11 with the body program, and equips ROM with the install program. And if the

above-mentioned alternative program is acquired through PC interface section 10, the system control section 11 starts the above-mentioned install program, and CPU which operates according to the above-mentioned install program will carry out overwrite of the alternative program temporarily stored in RAM13 etc. to a flash memory, and will install an alternative program (S46).

[0013] In addition, in the above, if a server 4 recognizes the fault of the body program of facsimile apparatus, it is also possible to transmit an alternative program to facsimile apparatus unconditionally, in this way, an alternative program [finishing / according to this example / notice / of failure analysis and an analysis result / the cure not only to carrying out but fault / through a data communication network only] -- also installing (install) -- since it can carry out through a data communication network, still quicker restoration is attained. If the program copied with is stored in a server 4 in the 4th example to the 3rd example of the above updating the above-mentioned program when fault occurred in the body program, fault generating will be preceded and a program will be updated. That is, by the server 4 of this example, as shown in the flow Fig. of drawing 6 of operation, if it is always supervising whether the new alternative program (new cure software) copied with was stored (S51) and the above-mentioned alternative program is stored in it (it is Yes at S51), it will judge whether the server 4 is beforehand set as the server 4 so that the applicable model equipped with the old program corresponding to the above-mentioned alternative program may be searched (S52). In addition, a setup of the above-mentioned applicable model retrieval is performed by the user if needed from the control unit or terminal unit 3 of a server 4. In this way, if judged with being set up so that applicable model retrieval may be performed (it is Yes at S52), the program (the old program) stored then in the program registration table beforehand set as the storage section in a server 4 will be searched. An example of a program registration table is shown in drawing 7. As illustrated, the network address of the terminal units 3, such as PC to which the image information equipment (facsimile apparatus and copying machine) of the model name (or model number) which it matches with each program and is equipped with the program, and the above-mentioned model name is connected, is registered. In addition, this registration is performed by each terminal unit's 3 matching with a program, and transmitting the network address of a model name and the above-mentioned terminal unit to a server 4.

[0014] If there is an applicable model as a result of performing applicable model retrieval (it is Yes at S54, less than [step S55] will be performed. In addition, less than [step S55], since it is the same as that of less than [of the 3rd example (refer to drawing 5) / step S42], explanation is omitted. However, a server 4 is acquired from the

program registration table having shown the network address of PC for transmitting to PC (terminal unit 3) in drawing 7. When judged with there being no applicable model in step S54 when judged with on the other hand being set up so that applicable model retrieval may not be performed in step S52 when judged with there being no new alternative program in step S51 (it is No at S51) (it is No at S52) (S54No), it escapes from this flow of operation at that time. In this way, according to this example, the abnormal occurrence of operation in image information equipment can be preceded, and a body program can be updated. In addition, although the case where image information equipment was mainly facsimile apparatus was explained above, this invention can be similarly carried out about image information equipment like a copying machine. That is, this invention by the data communication network is excellent also in the point of versatility compared with the conventional technique by facsimile transmission control procedures.

[0016]

[Effect of the Invention] As explained above, according to this invention, in invention according to claim 1 If abnormalities occur to image information equipment, the above-mentioned image information equipment will notify that to a terminal unit. The above-mentioned terminal unit which received the notice acquires the failure analyzer which communicated with the predetermined server in a data communication network, and has been sent from the above-mentioned server. Since the above-mentioned failure analyzer can be transmitted to the above-mentioned image information equipment, the above-mentioned image information equipment can operate the failure analyzer which received and failure analysis can be performed. It becomes unnecessary to make a failure analyzer resident in image information equipment. Therefore, failure analysis can be performed by the approach of being able to perform failure analysis of image information equipment without increasing the storage capacity of image information equipment, updating a failure analyzer easily, and having the versatility by the data communication network. Moreover, in invention according to claim 2, in invention according to claim 1, image information equipment transmits the result of failure analysis to a terminal unit, and it can restore broken image information equipment quickly while it can realize an effect of the invention according to claim 1, since the above-mentioned terminal unit can transmit the result of the received failure analysis to a server. Moreover, in invention according to claim 3, in invention according to claim 2, image information equipment transmits communication link bytestream information or functional setting information to a terminal unit with the result of failure analysis, and since the above-mentioned terminal unit can transmit the received

above-mentioned information to a server with the result of failure analysis, more exact troubleshooting can be performed. Moreover, in invention according to claim 4, it sets to invention according to claim 1 or 2. The information which shows whether abnormalities generated image information equipment while performing what is transmitted to a terminal unit. The above-mentioned terminal unit specifies the individual failure analyzer needed for failure analysis by the above-mentioned information, and since the specified individual failure analyzer is acquirable from a server. The amount of the failure analyzer transmitted and performed can be lessened, the transfer time and failure analysis time amount can be shortened, and communication link cost can be reduced. Moreover, in invention according to claim 5, if a server receives the failure analysis result of the purport that the program in the above-mentioned image information equipment is poor, from one image information equipment. If an alternative program is transmitted to the above-mentioned image information equipment through a terminal unit and the above-mentioned image information equipment receives the above-mentioned alternative program. Since the program analyzed with the defect whom it had till then can be permuted by the above-mentioned alternative program, broken image information equipment can be restored more quickly and renewal of a program excellent in the versatility by the data communication network can be realized. Moreover, in invention according to claim 6, if the alternative program for image information equipments is stored in a server. If it judges with the above-mentioned server having image information equipment with which the storage means in the above-mentioned server is searched, and the old program corresponding to the above-mentioned alternative program is carried. If the above-mentioned alternative program is transmitted to the above-mentioned image information equipment through a terminal unit and the above-mentioned image information equipment receives the above-mentioned alternative program, since the old program which it had till then can be permuted by the above-mentioned alternative program. When a bug etc. is discovered by the program, generating of the abnormalities of operation in image information equipment can be preceded, and the above-mentioned program can be updated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the system configuration Fig. showing the network system of each example of this invention.

[Drawing 2] It is the configuration block Fig. showing the facsimile apparatus of each example of this invention.

[Drawing 3] It is the flow Fig. of the network system of the 1st example of this invention of operation.

[Drawing 4] It is the flow Fig. of the network system of the 2nd example of this invention of operation.

[Drawing 5] It is the flow Fig. of the network system of the 3rd example of this invention of operation.

[Drawing 6] It is the flow Fig. of the network system of the 4th example of this invention of operation.

[Drawing 7] It is the data block diagram of the server important section of the 4th example of this invention.

[Drawing 8] It is the system configuration Fig. of the remote troubleshooting system in which an example of the conventional technique is shown.

[Description of Notations]

1 Facsimile Apparatus, 2 Copying Machine, 3 Terminal Unit, 4 Server, 9 Data Communication Network, 10 PC Interface Section, 11 System Control Section, 13 RAM, 21 Parameter Memory